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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/560,819	04/28/2000	Hiroshi Oagawa	1982-0149P	5103
7590 12/01/2005 Birch Stewart Kolasch & Birch LLP PO Box 747 Falls Church, VA 22040-0747			EXAMINER ROY, SIKHA	
			ART UNIT 2879	PAPER NUMBER

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/560,819

Applicant(s)

OAGAWA, HIROSHI

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-8,10,12,14 and 16-18 is/are pending in the application.
- 4a) Of the above claim(s) 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,12,14 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/6/05</u> | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The Amendment, filed on September 7, 2005 has been entered and overcomes the rejection of claims 1,3-8,10,12,14 and 16 under 35 U.S.C. § 112.

### ***Election/Restrictions***

Newly submitted claims 17 and 18 directed to an invention of method of making a radiation image conversion panel classified in class 428 subclass 213, that is distinct from the invention of a radiation image conversion panel (claims 1,3,4-8,10,12,14 and 16) classified in class 250 subclass 484.1 originally claimed for the following reasons:

These Inventions are related as product and the process of making the product. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by bonding the two layers using bonding agent which is different from thermo-compressing as claimed.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 17 and 18 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 5 - 8, 10, 12, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 4,979,200 to Umemoto et al. and further in view of JP 08313699 A to Ohara et al.

Regarding claim 1 Umemoto discloses (column 1 lines 58-68, column 2 lines 1-5) a radiation image conversion panel (radiographic intensifying screen) comprising phosphor layers containing stimuable phosphors (X-ray phosphors) and binder resin where the binder resin is unevenly distributed in the phosphor layer so that the amount of the binder resin to the stimuable phosphor in the uppermost layer (in the vicinity of the protective layer) is greater than that of the binder to the phosphor in the remainder of the phosphor layers. Umemoto further discloses (column 3 lines 25-30) that in order to obtain adequate adhesive strength between the uppermost phosphor layer and the protective layer the proportion of binder resin to stimuable phosphor is preferably at least 4% by weight of the entire phosphor layers which is certainly more than 0.5 wt.% as claimed.

Umemoto fails to disclose the thickness of the uppermost layer is increased relative to the thickness of the layer beneath the uppermost layer.

Ohara discloses (abstract, English translation sections [0041] – [0043]) the thickness of phosphor layers (fluorescent layer) mixed with binder changes with the property of radio-sensitization screen made for a purpose, the thickness of phosphor layer differs in every layer and the thickness of the uppermost layer is increased (becomes thin gradually towards the base material side from top protective layer side) relative to the thickness of the layer beneath. Ohara discloses this configuration yields an image of enhanced sensitivity, sharpness and graininess.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have the thickness of the uppermost phosphor layer of Umemoto increase relative to the thickness of the layer beneath as suggested by Ohara for yielding a radiation panel with an image of enhanced sensitivity, sharpness and graininess.

Referring to claim 3 Umemoto discloses the amount of the binder resin to the stimuable phosphor in uppermost layer is greater than that of the binder to stimuable phosphor in other layer by a range of from 4 to 8% by weight.

Referring to claim 5 Umemoto discloses (column 2 lines 24-50) the stimuable phosphor employable in the radiation image conversion panel includes bivalent europium activated alkaline earth complex fluoro-halide phosphor, a rare earth oxy-halide phosphor.

Regarding claim 6 Ohara discloses (English translation section [0025]) the stimuable phosphor grain size (mean particle diameter) is in the range of 1 through 20 $\mu$ m.

Regarding claim 7 and 8 Umemoto discloses (column 2 lines 60-68, column 3 lines 1,2) the thermoplastic elastomer binders can be selected from polyvinyl acetate, polyurethane, linear polyester.

Regarding claim 10 Ohara discloses (English translation section [0043]) the thickness of phosphor layer is in the range of 20  $\mu\text{m}$  to 1000 $\mu\text{m}$ .

Regarding claim 12 Ohara discloses the thickness of the phosphor layer is in the range of 50 through 300  $\mu\text{m}$ .

Regarding claim 14 Umemoto discloses all the limitations which are same as of claim 1 including the proportion of binder resin to stimuable phosphor at the uppermost layer is preferably greater by at least 4% by weight of that in other phosphor layers which is certainly more than 0.5 wt.% as claimed.

Umemoto fails to disclose the thickness of the uppermost layer is decreased relative to the thickness of the layer beneath the uppermost layer.

Ohara discloses (abstract, English translation sections [0041] – [0043]) the thickness of phosphor layers (fluorescent layer) mixed with binder changes with the property of radio-sensitization screen made for a purpose, the thickness of phosphor layer differs in every layer and the thickness of the uppermost layer is decreased (becomes thick gradually towards the base material side from top protective layer side) relative to the thickness of the layer beneath. Ohara discloses this configuration yields an image of enhanced sensitivity, sharpness and graininess.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have the thickness of the uppermost phosphor layer of Umemoto decrease relative to the thickness of the layer beneath as suggested by Ohara for yielding a radiation panel with an image of enhanced sensitivity, sharpness and graininess.

Regarding claim 16 Ohara discloses (English translation sections [0012], [0041]) the panel comprising multilayers (3 through 10) containing stimuable phosphor and binder.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 4,979,200 to Umemoto et al. and JP 08313699 A to Ohara et al. and further in view of U.S. Patent 5,519,228 to Takasu et al.

Claim 4 differs from Umemoto and Ohara in that Umemoto and Ohara do not disclose the wavelengths in the range of 300 to 500 nm of the radiation emitted from the stimulated phosphor when irradiated with rays of wavelength in the range of 400 to 900 nm.

Takasu in analogous art of radiation image conversion panel discloses (column 4 lines 25-31) a stimuable phosphor such as divalent europium activated alkaline earth metal halide phosphor giving a stimulated emission of wavelength in the range of 300 to 500 nm when it is irradiated with stimulating rays of wavelength in the range of 400 to 900 nm is employed. It is well known in the art of radiation image panel to employ

radiation of 400-900nm wavelength passing through the object and sequentially exciting the phosphor in the panel.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to specify the wavelength of 400 to 900 nm of the irradiating radiation as taught by Takasu in the radiation image conversion panel of Umemoto and Ohara. The stimuable phosphor used in the radiation panel of Umemoto being the same stimuable phosphor (divalent europium activated alkaline earth metal halide phosphor) as disclosed by Takasu would inherently emit radiation of wavelength in the range of 300 to 500 nm when irradiated by radiation of 400-900nm wavelength.

### ***Response to Arguments***

Applicant's arguments filed September 7, 2005 with respect to claims 1 and 14 have been fully considered but are not persuasive.

In response to applicant's argument that the invention is characterized by unexpected results and such results rebut prima facie case of obviousness the examiner respectfully submits the following. The unexpected result (submitted in Declaration under 37 C. F. R. 1.132 filed 8/6/02) shows in Tables 1 and 2 that the light emission quantity can be improved and graininess noise of the panel can be reduced compared to the Comp. Ex 3 when the amount of binder parts to the stimuable phosphor (60 parts) is more in the first phosphor layer than that (50 parts) in the second phosphor layer as taught by Umemoto. However the thicknesses of the first and second phosphor layers as disclosed in Table 1 are same, both having thickness of 140



μm. Hence the unexpected result is obtained by increasing the amount of binder to the stimuable phosphor part in the first phosphor layer than that in the layers underneath and not due to the increase or decrease in thickness of the phosphor in first and second layers.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. R.

Sikha Roy  
Patent Examiner  
Art Unit 2879

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